High Frequency Communication Systems

Homework 6 - Two Dimensional FDTD

Semester 2, 2020/21

1. Modify the code in the notebook and simulate a PEC slab of width $w = 25\,\text{mm}$. [3]
2. Create a sinusoidal excitation source $J_z = \sin(n \times \pi/10)$ that lasts in the time duration $n \geq 1$ and $n \leq 10$ [2]
3. For the boundary conditions, write down the expressions for the below and show them for the sinsoidal excitation above:
   (a) PEC boundary [2]
   (b) PMC boundary [2]
4. Create a structure as shown in the figure below and find the transmission and reflection of a wave. Use the absorbing boundary conditions and find the transmission at 10 cm distance from the structure on the right. [5]

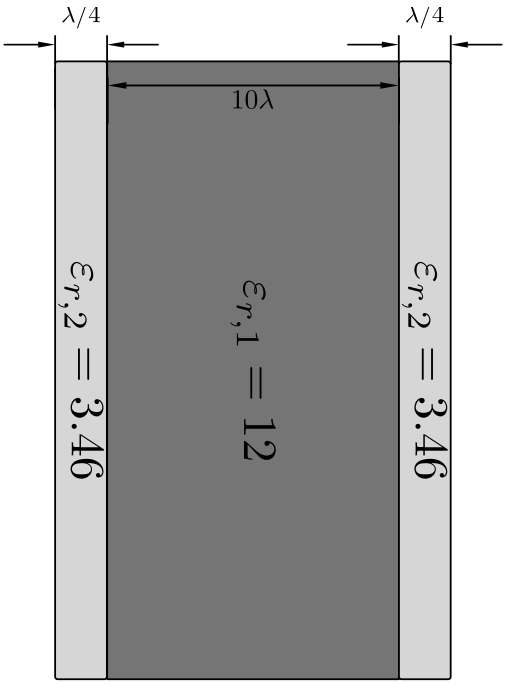

Figure 1: Multilayer Structure

Note: the thickness units in the simulation are arbitrary. Please go to the next page for submission instructions.

Submission Instructions

Fork the Github repository. Create a new cell for each question. For submission, you will have to provide the Github link for where you have deposited the modified repo or give us the My Binder link where we can directly run your notebook.

Temporary page!

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